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Interactivity, Social Presence, and Journalistic Use of Twitter

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Running Head: INTERACTIVITY, SOCIAL PRESENCE, AND JOURNALISTIC USE OF TWITTER

INTERACTIVITY, SOCIAL PRESENCE, AND JOURNALISTIC USE OF TWITTER

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Abstract

This study explored the extent of journalists' use of Twitter in terms of interactivity and social cue using a content analysis of journalists' Twitter profiles ($N = 555$). Journalists with more personal and professional details on Twitter profiles were more likely to be highly interactive, a relationship that predicts higher perceptions of credibility based on past research. Results suggest the need for journalists to utilize interactivity more for increasing their impact on Twitter.

Keywords: Twitter, journalism, interactivity, social cue, content analysis

Introduction

Since Twitter emerged as a viable tool for reaching public audiences during the 2008 U.S. presidential campaign, journalists began to embrace forms of social media as another avenue of both communication and information gathering (Bunz, 2010; Parmelee, 2013; Uberti, 2014). Individual journalists initially adopted the medium on their own and they soon were followed by formal newsroom efforts that led to in-house training and hiring public engagement editors.

Jennifer Preston at *The New York Times*, the first social media editor at a major U.S. newspaper, was tasked with helping both model social media integration into reporting practice and to help guide reporters in best practices (Farhi, 2009; Kirkpatrick, 2009). Whereas practical how-to was part of newsroom training, less addressed was the issue of social presence—how much personal information can and should be shared in social media bios before it starts to blur the lines of play-it-straight journalistic objectivity norms (Lasorsa, 2012). Social media editors in newsrooms advocate that journalists use the tool for listening and responding to followers, a form of interactive engagement with news audiences (Posetti, 2009). But what of non-professional interaction in the form of personal disclosure?

Despite the formal newsroom efforts, studies show journalists have been slow to embrace interactivity on Twitter (Armstrong & Gao, 2010; Hermida, 2010). Interaction in the form of replying or publicly mentioning another user in response to a question is a way to publicly and interpersonally show users that the journalist is listening to feedback and questions, but the percentage of journalists actually engaging in this behavior has repeatedly been demonstrated as low, albeit possibly growing slowly (Hermida, 2010; Lasorsa, Lewis, & Holton, 2012). This low-engagement behavior presents professional problems. Recent findings show that interaction on Twitter actually is a factor in how people assess the credibility of journalists on Twitter and negates traditional problems in credibility assessment, such as gender disparities, found on other news platforms (Jahng & Littau, 2016). In a global, interconnected medium such as Twitter, users often are subjected to information from unknown sources in the form of retweets, and they rely on both heuristic and informational cues in order to determine whether the information source is credible. For example, the Twitter user profile can provide either professional or personal information (known as “social cue”) that allows users to make quick judgments about a reporter’s background in an attempt to decide whether to trust information coming from that source. Lack of interactivity on social media can particularly be an issue with practical consequences.

Past research has examined journalistic use of Twitter from both an institutional point of view and at the reporter level, examining interaction and using social media posts for personal sharing (Boyle & Zuegner, 2012; Canter, 2015; Lasorsa, 2012; Molyneux, 2014). One of the unanswered questions from that body of research is how interactivity and biographical social disclosure work together. While strong social presence, marked by high social cue, is not a predictor of credibility (Jahng & Littau, 2016), it is possible that it is helping drive interactivity and thus can indirectly help increase perceptions of journalistic credibility.

This research, based on a content analysis of 555 journalists’ Twitter profiles, is an attempt to assess whether a relationship between social disclosure and interactivity exists. What is new about this research compared to past work on interactivity and social presence is that this work focuses on social disclosure in Twitter biographies rather than individual tweets. The “retweet” culture on Twitter means that users often share others’ tweets with their own audiences, and that means Twitter users as audience members often are confronted with information from sources they don’t follow. Users must construct credibility based on limited information about the source, and that often involves a glance at the sharer’s Twitter biography and most recent Twitter posts to assess levels of interaction and social presence.

Literature Review

Social Media and Twitter

Twitter’s “microblogging” format is characterized by short messages known as “tweets” (140 characters or less) that are published in reverse-chronological order (boyd, Golder, & Lotan,

2010). Twitter functions as a classic social network, defined as a web application that allows people to create user profiles and connect with one another (boyd & Ellison, 2007). This act of following allows a user to construct a custom feed determined solely on the basis of whom a user chooses to follow (Chen, 2011). Users post their own thoughts and ideas, reply to others' posts, and share a user's post to their own network of followers by "retweeting," effectively enlarging the original poster's audience. Finally, users can post links with their tweets ranging from news to their own personal content such as videos or blogs (Johnson & Yang, 2009; Sussman, 2009).

Content creation on Twitter has grown sharply since Twitter's launch, from 5,000 tweets per day in 2007 to an all-time high of 500 million per day by 2013, a number that has remained consistent even by the end of 2015 (Krikorian, 2013; Oreskovich, 2015; Weil, 2010). About 19% of American adults reported using the service in 2014 compared to the other key social networking sites in the United States: 59% for Facebook, 23% for LinkedIn, and 22% for Pinterest (Duggan, Ellison, Lampe, Lenhart, & Madden, 2014). More importantly, Twitter is a key platform for news reporting and sharing news (Project for Excellence in Journalism, 2014).

Journalists have not been as quick to embrace the everyday culture of the medium, from updating their profile brands with detailed or customized information to interacting with their audiences; often they are constrained by the busyness of everyday work to do more than post links to their own stories (Ngak, 2012; Schultz & Sheffer, 2010; Uberti, 2014). At its most basic level, Twitter is useful for distributing links to stories so that readers can get news directly from reporter sources rather than having to go to news site home pages on the Web (Ahmad, 2010). Beyond that, Twitter is transforming journalistic routines and norms because of how social media conversation is entering the production and dissemination of news (Barnard, 2014), such that older news values are being grafted on to new emerging practices and values (Hermida, 2012) that are consistent with both Twitter audience expectations and the way in which people interact online (Hermida, 2013).

Twitter use for content and interactivity

Journalistic use of Twitter has been studied at both the institutional level (Johnson & Kaye, 2002; Kiousis, 2001) and the individual level (Flanagin & Metzger, 2000). One area of research has examined how Twitter affects news coverage produced by reporters and published by news organizations, an activity that treats Twitter as a tool to drive news coverage, such as using tweets from regular citizens to build news stories (Broersma & Graham, 2012) or tap into citizen discussion as a new source of news story ideas (Broersma & Graham, 2013). Other research has examined newsroom culture around Twitter use, such as using it as part of the sourcing routine and use of social-media driven stories (Paulussen & Harder, 2014) or to offer behind-the-scenes coverage of live events or the reporting process (Canter, 2015).

At the individual level, studies found reporters primarily focused on sharing links to their own stories, links to their news organizations' stories (Artwick, 2013; Boyle & Zuegner, 2012), and retweeting elite sources and newsmakers (Artwick, 2014). International news built in the United States but reporting on faraway places has been an exception, as reporters have shown more willingness to amplify non-elite source voices (Cozma & Chen, 2013; Hermida, Lewis, & Zamith, 2014). Parts of the field, such as political reporting, have seen cases of reporters blurring the line between reporting and analysis (Coddington, Molyneux, & Lawrence, 2014). In terms of social disclosure, global standards might be a factor. Research on South Korean journalists found a greater amount of tweeting about personal life and interaction than has been found in studies of U.S. reporters (Kim, Kim, Lee, Oh, & Lee, 2015).

Social Presence

Twitter biographical information is presented via the profile page, which consists of a person's biographical details, own tweets, and retweets. Profile pages also allow for customized banners, and users show they're serious about using the medium when they take time to create a well-produced profile page (Farhi, 2009; Twitter, 2014). For professionals, biographical details include where they work, what their job is, and any other relevant professional context, but the lack of

standards means a user can choose to share personal details as well. Research in personal disclosure among journalists is more limited. An examination of gender differences found that female reporters were more likely to tweet personal disclosures than male reporters (Lasorsa, 2012). The “personal side” sharing could include tweeting jokes about journalism, their beat, or life in general as well as offering cultural observation or opinion (Molyneux, 2014; Mourão, 2014). Still, social presence literature tends to focus on what the journalists are posting, and even studies that have combined interactivity and variables have not examined biographical information (Lee, 2014).

For this research, personal self-disclosure in a Twitter biography will be viewed through the lens of social presence. Social presence is defined as a psychological concept reflecting the subjective experience of closeness and connectedness in mediated communication (Heeter, 1992; Lombard & Ditton, 1997). A medium is considered rich in social presence when it allows the transmission of nonverbal signals, such as posture, dress, proximity, orientation, physical appearance, facial expressions, and direction of gaze, all of which reduce ambiguity and increase the sense of social presence of communication partners (Short, Williams, & Christie, 1976). Social cue, as minimal as a few biographical details or a portrait picture, can have a drastic impact on the formation of positive impressions by causing individuals to have a strong sense that they know with whom they are interacting even when objectively they are provided with a very small amount of information from the person (Tanis & Posmes, 2003).

In social media settings, an increase in social presence can be seen as the amount of information provided by the individuals in their profiles. Social media encourages self-presentation by allowing individuals to display more information about themselves and express their identities (Hong, Tandoc Jr., Kim, Kim, & Wise, 2012). Social media profiles have become a common channel to express one’s identity online for increased social presence (boyd & Heer, 2006). Higher levels of presence on social media elicit a stronger desire to engage with other users and are an important precondition for building interpersonal trust in computer-mediated communication (Cyr, Hassanein, Head, & Ivanov, 2007). In addition, social media profiles with higher social cue are considered to be more positive in terms of popularity and physical attractiveness (Hong et al., 2012).

Jahng and Littau (2016) examined the impact of journalists’ use of Twitter in regard to social cue and interactivity on their perceived source credibility, with credibility in that study defined as perceptions of the journalist’s trustworthiness. Participants had a more positive attitude toward the journalists who provide a lot of social cue in their Twitter profiles, but such material had no impact on how credible the journalists were considered. Increased social cue on Twitter may not be influential in how credible Twitter users perceive the journalists to be, but this study asks whether journalists differ in their decisions to reveal more personal information about themselves because of the type of news they report or explain on Twitter. Reporters in some topic areas might provide more personal information on the Twitter profiles than reporters in other topics. Thus, with the first research question, this study aims to examine whether there are certain types of journalists who would decide to provide more social cue on Twitter:

RQ1: What are the characteristics typical of a journalist with strong social presence in their Twitter biography?

Interactivity

Studying social media production is in part a study in interactive behavior. Kioussis (2001) defined interactivity as “the degree to which a communication technology can create a mediated environment in which participants can communicate (one-to-one, one-to-many, many-to-many), both synchronously and asynchronously, and participate in reciprocal message exchange” (p. 372). Replying or mentioning another user is a signal, either to followers or non-followers via retweets or searches, that journalists are reading and thinking about replies and feedback they get on Twitter. There also are social benefits to interaction, as it is positively linked both to trust

as a relational outcome (Liu, Ginther, & Zelhart, 2001) and to intent to maintain online relationships (Park & Lee, 2013).

On Twitter, journalists can post their own updates, reply to others' posts, create conversation by replying to questions or comments from followers, or share other users' updates with their own followers through a process known as "retweeting" (Messner, Linke, & Eford, 2011). The interactive part of Twitter's news sharing, then, is paramount; users share news and it is disseminated to followers, who can then pass it on to their followers and amplify the message. Having active followers who trust your news product can increase the spread of tweets such that they are seen even by non-followers (Hermida, 2010). Online interactivity allows the consumer to form favorable impressions of those doing the replying, and in particular this is linked to credibility. This has critical implications for Twitter use because the open nature of the network is such that anyone following a journalist is able to reply to individual messages (Metzger, Flanagin, Eyal, Lemus, & McCann, 2003; Morris, Counts, Roseway, Hoff, & Schwarz, 2012). This suggests that those credibility judgments matter even more, because people seeing news from an unknown journalist source have to make quick judgments about the message and source credibility. Interactivity and social presence are both part of this process. Users make heuristic judgments about information found online (Metzger, Flanagin, & Medders, 2010) and these are global evaluations that go beyond individual messages and can extend to profiles or other informational cues (Sundar, 2008). Twitter follower counts and how recently or frequently a person posts influence these decisions (Westerman, Spence, & Van Der Heide, 2012). As such, this study examines the current prevalence of interactivity by journalists and whether there are certain groups of journalists who are more likely to be interactive.

RQ2: What are the characteristics typical of a journalist with strong interactivity?

Finally, what is unknown from past research is whether certain actions on Twitter by journalists can predict their level of interactivity. Profile construction, such as using custom banners and avatars, might indicate a signal that a journalist intends to be more involved in the medium. Because journalists can customize their own profiles to fit their personalities, the relationship between social presence and interactivity, when other profile construction variables are taken into account, merits attention. While social cue wasn't a significant predictor in the Jahng and Littau (2016) findings that drive this study, unknown was whether this independent variable was linked to the interactivity variable that was positively associated with credibility.

RQ3: How are social presence and interactivity related to one another in the context of how a person constructs their Twitter profile?

Method

Unit of analysis

This study utilized content analysis to address the stated research questions. The unit of analysis was profiles from Twitter accounts registered to self-identified journalists. This study used the website Muck Rack (located at Muckrack.com) as the source for the content analysis. Muck Rack is one of the most popular sites on the Web to cater to journalists looking to connect their social profiles together. It is a global database of journalists who have registered accounts and connected them to their Twitter profiles. At the time this study was done, there were more than 30,000 registered users on Muck Rack. The site also offers the ability for journalists to self-report their areas of coverage, which made it possible to categorize journalists by their subject areas even if this information wasn't in their Twitter biographies.

There are 20 different topic areas, such as politics, business, or sports, listed on Muck Rack. The first step in creating a sample was counting the number of accounts registered in each topic area and then dividing that amount by the total number of registered accounts on Muck Rack. This allowed the coders to determine what percentage of the overall sample was represented by each category. Coders set a target number for accounts to analyze at 555. The coders then made certain that each category's portion of those 555 profiles was proportional to the overall total on

the site. For example, sports represented 9.08% of the total accounts on Muck Rack, so 50 sports profiles were coded to account for 9.08% of the 555 total profiles. Once the number of profiles targeted for each category was set, a random number generator determined which profiles would be coded from the entire pool within each category. Profiles for each category were numbered starting from one and counting upward, and the numbers generated at random were matched with profile numbers on the category list. Coders noted the Twitter handle in a spreadsheet, and once this was done for all categories the list of profiles to be coded was complete.

Procedure and Reliability

Two coders conducted an initial screening of the profiles after being trained in the coding variables outlined in the next sections. The screening consisted of a pretest to account for any questions or irregularities in the codebook wording, which led to refined definitions. Next, the coders coded 10% of the profiles picked at random and the results were checked for reliability using Krippendorff's alpha as a test of intercoder reliability using ReCal (Freelon, 2010). All variables coded showed a reliability score at 0.83 or higher, which is above the acceptable 0.80 threshold. (Lombard, Snyder-Duch, & Bracken, 2002). Then the remaining profiles were coded separately and the results were merged for analysis.

Coding Variables

Every profile coded assembled details from the user's Twitter biography information and feed and matched it with the user's content category. Basic information included the date the profile was coded, the user's Twitter handle, the number of followers the user had, and the number of Tweets listed in the user's profile. Next, coders looked for customization of the profile, noting whether the user had changed the header background picture (coded as yes or no) and whether the Twitter avatar used the introductory Twitter "egg" icon, used an avatar image as a stand-in, or featured a picture of the user.

Content creator: Coders examined the profile to determine whether the person listed themselves as a content creator (coded as yes or no). A creator was defined as someone who identifies themselves as a writer, reporter, blogger, analyst, columnist, correspondent, anchor, presenter, host, newscaster, freelancer, or other types of jobs that are associated with content creation or delivery in print, broadcast, or online.

Topic category: Muck Rack listed 20 different content news categories. While coding was done to be proportional, for analysis this was problematic because some categories were not well populated. Religion, for example, had only six profiles coded. Thus the categories were combined if they had overlapping interest areas and also seemed to match well in terms of the conceptual split between hard and soft news. Categories consisted of: lifestyle (such as health, religion, travel), business, civic issues (such as public safety or transportation), science and technology (which included environmental reporting), media, politics, opinion, and sports.

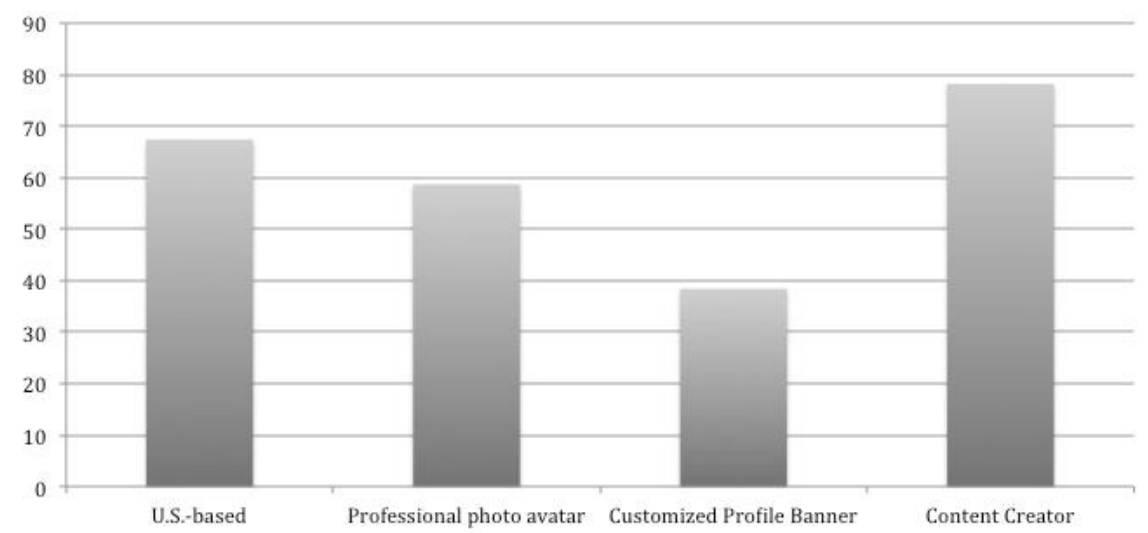
Twitter social presence: Next, the profile biography (which consists of 160 characters) was coded for personal facts shared, with the variable "social presence" defined as the amount of personal information shared in the Twitter user's biography. This was done to reflect the aforementioned theoretical scholarship on social presence, which characterizes high social presence as containing a large amount of social cue (personal-facts disclosures). Coders counted the total number of facts stated in the biography and then counted how many of those facts were personal disclosure. Personal facts were defined as disclosures users make that are not related to their jobs or careers, such as hobbies, family life, or where they live. Based on these totals, a social cue count variable was created by dividing the personal disclosures by facts shared to determine what percentage of facts shared were personal. For analysis, these percentages were then recoded into the categorical variable of high or low social presence using frequency statistics. High social presence was determined by comparing a user's percentage to the average percentage among all the bios coded in this research. The cutoff between the high and low groups was determined by trying to reconcile the mean (26.8%) and median (25.0%) values, and 25.9% was chosen as the cutline for the low-high condition based on it being halfway between

the two. Thus social presence above 25.9% was coded as high, and all else was coded as low.

Twitter interactivity: Finally, coders determined the interactivity count for each profile, with the variable “interactivity” defined as number of tweets in a Twitter user’s feed that reflect either reading tweets from a person followed or conversing with a follower. In this case, the work of Messner, Linke, & Eford (2011) helped determine how theoretical work on interactivity would be turned into measured variables. Specific Twitter actions were coded as being interactive or non-interactive based on attempts at conversation or listening to followers. This was coded by looking at the 20 most recent tweets in a user’s feed by clicking on the “Tweets & Replies” tab at the top of their Twitter profile page. Tweets were sorted into five different categories: non-interactive without links (consisting of no use of another’s Twitter username and no link), non-interactive with links (no use of another’s Twitter username but the tweet contained a link), retweets (sharing another user’s tweet using the retweet button or using a manual “RT @” retweet), replies (tweets that are a reply to a tweet, starting with the person’s @username), and mentions (tweets that contain another’s username, including tweets that started with .@username in an attempt to reply to the person but also share it publicly). Mentions and replies were added together and considered the interactive tweets; that total was divided by 20 to create a percentage of tweets that were interactive. High interactivity was determined by comparing a user’s percentage to the average percentage among all the bios coded in this research. Similar to what was done with social cue, an interactivity high-low variable was created using frequency statistics. The cutline was determined by trying to reconcile the mean (37.5%) and median (35.0%) values, and using the same method as social presence, 36.3% was chosen as the cutoff for the low-high condition based on it being halfway between the two. As a result, interactivity above 36.3% was coded as high, and all else were coded as low.

Findings

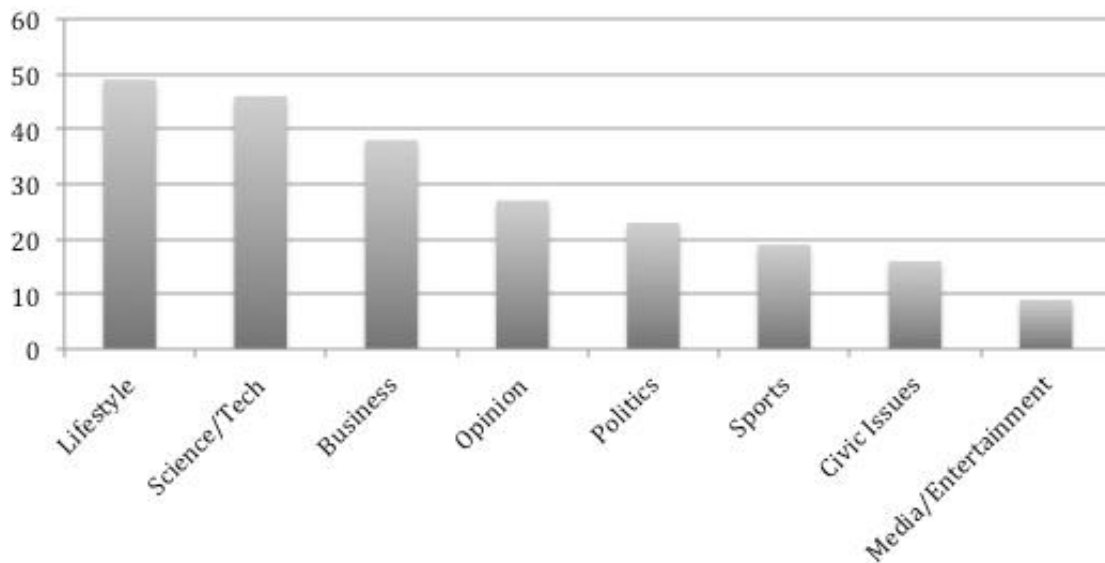
The 555 Twitter profiles selected were coded during October 2014. In addition to the data reported below for the research questions, other demographic data sheds light on the sample. The average Twitter user studied in this content analysis had about 9,132 followers and 9,287 tweets. In terms of profile construction, 374 (67.4%) of those studied were based in the United States and 326 users (58.7%) had a professional photo for their profile compared to 153 using a personal shot (27.6%), and 75 using some type of picture avatar (13.5%). Only 213 users (38.4%) had a customized Twitter profile featuring an uploaded image banner. In terms of content creation, 434 of the journalists (78.2%) self-identified as some type of content creator while the rest would, according to the codebook definition, fit the role of editor, executive, and so forth.



<FIGURE 1. Key descriptive statistics for the 555 Twitter profiles sampled and coded for this study. The graphs represent the percentage of sampled users who were coded as “yes” for the given category. >

RQ1: Social presence by journalistic beat topic category

The first research question asked about the characteristics typical of a journalist with strong social presence. This question was answered two ways. First, chi-square analysis compared high-low disclosure to the other categorical variables: U.S. journalism, profile header customization, photo type, content creator status, and topic category. There were 290 profiles in the low social cue category (56.1%) compared to 43.9% in high social cue, thus reflecting a general split that favors more professionalism in journalists' Twitter bios. With the chi-square tests, none of the comparisons were statistically significant except for topic category ($\chi^2(7, N = 555) = 17.94, p < .05$). The differences for topic category were seen mostly in a few categories that showed a sharp departure from the low-high split in the overall count. Science and technology was the only category that showed a reversal of the aggregate split, with 46 journalists showing high social cue (62.2%) compared to 28 showing low social cue (37.8%). In addition, two categories showed an even stronger trend away from personal disclosure. Political journalists were split at 48 low social cue (67.6%) and 23 high social cue (32.4%) and sports journalists were split at 32 low social cue (62.7%) and 19 high social cue (37.3%). The second part of answering this question used bivariate correlation to examine non-categorical variables such as follower and tweet counts against the percentages for social presence and interactivity. Analysis showed a non-significant relationship between tweet count and social presence, but there was a negative relationship between a journalist's number of followers and social presence percentage ($r(553) = -.11, p < .05$). In other words, the more followers a journalist has, the less likely he or she was to disclose personal details about themselves.

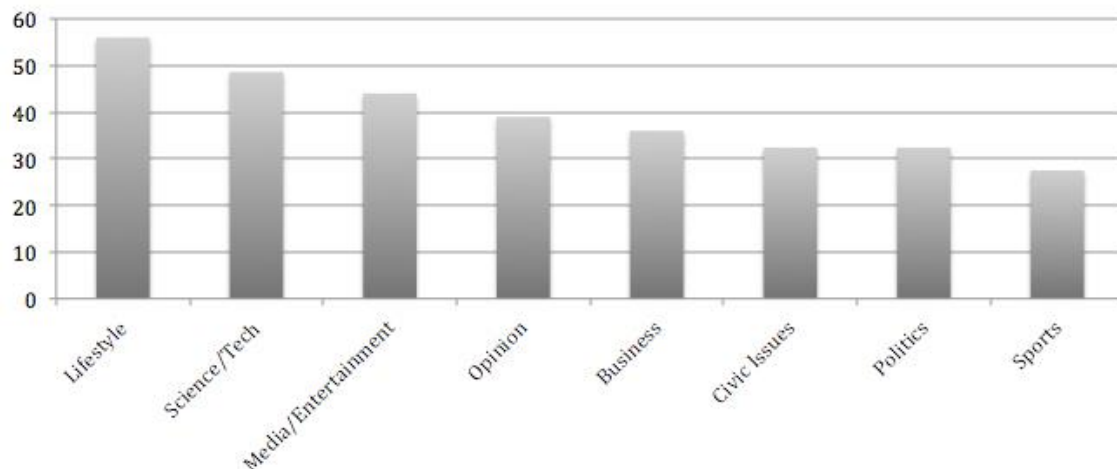


<FIGURE 2. The percentage of sampled users who demonstrated high social presence in each of the eight beat topic categories, as explained in RQ1.>

Taken together, the correlations and chi-square results offer some insights. The science and technology numbers fit the pattern, as the category had a relatively low count (13.3% of the 555 profiles) and had high disclosure percentages. Politics and sports were roughly in the middle in the total number of profiles coded among the eight categories, as politics had 71 (12.8% of the total) of the profiles and sports had 51 (9.2%). Thus it would seem that though there were categories with higher totals, these two represented the correlation trend better in that they veered most from the high-low split.

RQ2: Interactivity by beat topic category

The second research question asked about the characteristics typical of a journalist with strong interactivity. This question was answered using chi-square analysis and correlation, similar to the first research question. First, chi-square analysis compared high-low interactivity to the other categorical variables: U.S. journalism, profile header customization, photo type, content creator status, and topic category. There were 306 profiles in the low interactivity category (59.2%) compared to 211 (40.8%) in high interactivity, thus reflecting the literature that found journalists tend to post tweets and links without interacting much with the audience. With the chi-square tests, again topic category was the only one to find significance in comparison to interactivity ($\chi^2(7, N = 555) = 19.50, p < .01$). Similar patterns to social cue emerged with the topics category. Science and technology showed a roughly even split between low and high interactivity, with 38 low interactivity (51.4%) compared to 36 high interactivity (48.6%). Political journalism and sports journalism again both veered from the aggregate percentages toward even lower interactivity, with politics showing 67.6% low and sports at 72.5% low. In addition, civic issues were 67.6% low interactivity. In examining the correlations, neither follower counts nor tweet totals were associated with interactivity.



<FIGURE 3. The percentage of sampled users who demonstrated high interactivity in each of the eight beat topic categories, as explained in RQ2.>

RQ3: The relationship between social presence and interactivity

Given that the answers to RQ1 and RQ2 showed similar patterns, with similar categories showing different levels of personal disclosure and interactivity than the aggregate totals, the relationship between interactivity and social presence becomes more important. RQ3 asked how social presence and interactivity are related to one another in the context of how journalists construct their Twitter profiles. First, bivariate correlation shows the variables are related ($r(553) = -.10, p < .05$), meaning that high amounts of personal sharing in Twitter profiles is related to high interactivity. This relationship reflects Twitter's status as a social communication platform.

The question remaining is how much these variables influence one another in light of some of the other factors studied in this research. Thus two regression analyses were run, one for interactivity percentage and one for social presence as dependent variables. In both regressions, Twitter follower and tweet counts, content creators, and whether or not users had customized their profiles were entered as predictors because they were dichotomous variables. In addition, the eight topic categories were split into binary categorical variables using dummy coding to create eight different variables. For example, the first variable transformed lifestyle profiles into yes and the seven other category types into no. Then this was repeated for business, civic issues, science, media, politics, opinion and sports. Finally, for interactivity's regression, social presence was a predictor variable while the opposite was true for the other regression.

The first regression predicting social presence showed significance ($R^2 = .08$, $F(12, 542) = 3.66$, $p < .01$) with interactivity percentage ($\beta = .08$, $t(542) = 1.99$, $p < .05$) and a customized profile ($\beta = .14$, $t(542) = 3.30$, $p < .01$) acting as significant positive predictors while content creator was a significant negative predictor ($\beta = -.11$, $t(542) = -2.66$, $p < .01$). Those who were content creators shared more personal details, whereas those who identified as editors or executives revealed less. High interactivity stayed significant in this regression. Having a customized profile in this case could represent an intention to engage with the audience beyond merely posting. The second regression predicting interactivity showed significance ($R^2 = .05$, $F(12, 542) = 2.16$, $p < .05$) with social presence ($\beta = .22$, $t(542) = 3.99$, $p < .01$) as the only significant predictor. The lifestyle category was approaching positive weight at $p < .05$, as was sports (although that weight would have been negative).

Taken together, the regressions shed light on the chi-square results from the first two research questions. While there were some tendencies for categories such as politics, sports, or science to stray from the expected percentage split for both interactivity and social presence, by using dummy coding in regression in concert with the other variables we see those categories have much less impact on predicting the interactivity or social presence compared to other factors such as a person's specific job.

Discussion

While the interactivity levels measured in this study were low, a finding consistent with past research, the new finding in this study is that there is a positive relationship between interactivity and social presence. Journalists who show high social cue in their profiles tend to be highly interactive. These findings have implications for both scholarship and practice. In terms of scholarship, recall that this study was building on past work that showed no impact for social presence on credibility, but also that interactivity was strongly linked to perceptions of journalistic credibility (Jahng & Littau, 2016). That model would seemingly discount social presence as a factor, but these results indicate that further research should explore whether social presence is a potential driver of interactivity, a type of precursor that might not show up in a controlled lab experiment.

What is not known based on this data is whether this relationship between social presence and interactivity is reflective of training, prolonged use, or a certain personality type. That is, are highly interactive journalists more likely to have high social cue on Twitter merely as a matter of personality and behavior? Or does this mean that if journalists who join Twitter are trained to construct personalized profiles with custom pictures, banners, and high social disclosure then they will over time become more interactive or at least see some of the benefits of being invested in a more interactive use pattern? Understanding this relationship is important because these factors are building blocks in how users assess journalistic credibility on Twitter when they encounter a tweet from a journalist they don't know or follow. It also is worth understanding as newsrooms attempt to find ways to increase reporter engagement on social media.

If journalists' tendency to be interactive can impact Twitter users' perception of their credibility, then interactivity's demonstrated relationship with social presence suggests a need to further explore how and why the latter influences the choice to be more interactive on Twitter. While Jahng and Littau (2016) found social presence isn't linked to credibility judgments, its positive relationship with interactivity suggests that it potentially is a factor in the choice to interact, which in turn drives attitudes such as credibility perceptions.

In terms of practical implications, the results showing a relationship between social presence and interactivity can help guide newsrooms in thinking about effectively training journalists to use Twitter as it becomes more normalized as part of news operations. First, while credibility is certainly not the only factor to consider and indeed could not have been the object of study given the method used, the results are clear that interactivity is an important factor in the global assessment of whom to follow and whose messages to trust. In addition, those who are open about sharing in their bios tend to interact more, so newsroom Twitter training should incorporate

more than the instruction to respond, reply, and retweet as part of using the medium. Indeed, scholars have noted the need to interact with audiences in past work but none have touched on the need to show strong social presence. The results here show that those who are inclined to share also are inclined to interact, and so training journalists in the art of social disclosure would be a helpful addition to Twitter training.

Those who train journalists regarding Twitter often put some emphasis on the importance of replying to people who ask them questions, comment, correct the record, or offer alternative points of view on Twitter. But the results here do show that some thoughtfulness about biographical disclosure and the open nature of Twitter conversation, those personal elements Twitter users share in order to show their human sides, also can be an important factor in training.

Beyond the main findings in RQ3, the content analysis of journalists' Twitter profiles in this research confirms past findings that journalists demonstrate low levels of social presence and interactivity. But this study also extends that knowledge further in two ways. First, in breaking out interactivity and social presence by topic, the results here shed new light on those previously observed phenomena. When analyzing interactivity and social presence by topic, we find that most of the topics stay roughly equivalent to the baseline percentages when judging journalists as a whole, similar to past work. The results show that science and technology journalism actually behaves in the reverse, with journalists in those topic areas more likely to be interactive and to construct bios that disclose personal details. Alternatively, journalists covering topics such as politics and sports are less interactive and personal on Twitter.

The content categories findings show that neither social presence nor interactivity are monolithic behaviors among journalists. Instead, there are differences for topic categories. Why there are differences could potentially be explained by the nature of some of the topics. Politics and sports are common topics on Twitter (Wiltshire, 2013) and in some ways they are characteristically driven by partisanship (affiliation with political party or sports team).

These results are exploratory in nature and any attempt at interpretation is extrapolation, but we offer a few potential explanations as a starting point for future research into these new findings. First, it is possible that journalists on Twitter who cover these topics are even more careful to avoid personal details or interaction for fear of being seen as being biased against a team or a political party. At the same time, a topic such as science or technology is less controversial on the whole. While certain topics such as climate change have been politicized and broken users into camps, the topic itself isn't politicized by definition. Perhaps followers of science and technology are of a certain type, perhaps friendly to the topic itself and the journalist has less fear of being perceived as biased. A second possible explanation could be found in the content of replies that journalists receive on Twitter. The Internet phenomenon known as "trolling," in which users harass others on interactive social platforms, has been demonstrated consistently in online research (Hardaker, 2010). It is possible that journalists working in high-interest topic areas characterized by partisan-like passions might be subject to more types of this abuse. While this study did not examine the types of replies the journalists get, future research could explore whether there are links between being the recipient of trolling behavior and tendencies to interact and self-disclose personal information. The results also might mean that journalists are more likely to interact on topics that are less likely to draw trolling criticism and less likely to interact on issues that are subject to trolling, debate, or criticism. Regardless, this is a relationship that has yet to be explored in research and represents a worthwhile new direction based on the findings in this study.

Discovering why journalists in some areas interact more than others has practical implications. It could simply mean that more training is needed in certain topic areas to bring those parts of the field in line with best practices, or that journalists who cover certain topics are more resistant to Twitter interactivity and social presence. Understanding and helping journalists on particular beats learn to interact with their audiences is a useful endeavor as news dissemination continues

to move to a more networked-based information spread and away from landing pages on singular platforms.

Worth noting is that most often the content creators are more likely to be interactive on Twitter with more social cue, and it appears that follower count tends to gravitate toward those who already have a well-known name outside of the medium. A similar pattern has been demonstrated in the blogosphere (Hindman, 2009). Contrary to the popular belief that blogs are the democratized form of voices, Hindman found it was only a small percentage of bloggers who get a noticeable number of readers and viewers. He argues that the small number of voices in the blogosphere is less of a concern than the fact that it is the journalists from elite mainstream media who are getting the public attention of the blogosphere (Hindman, 2009, p. 128). Other research has demonstrated such tendencies in Twitter activism; Twitter users with higher connectivity and issue involvement were more influential in the information flow on Twitter (Xu, Sang, Blasiola, & Park, 2014). It is left to future studies to examine whether such a pattern also holds for journalists based on their skills to utilize Twitter.

As with any research, there are limitations that could be addressed in future studies. The content analysis looked solely at specific details shared, and thus the coders did not add any additional details about the journalists coded, including professional characteristics such as what type of journalist they are (television or print, for example) as well as personal demographic characteristics such as age or gender. It is possible these factors might prove useful in further understanding what was found here. Also, the content study in this case was a snapshot in time, and thus Twitter feeds and user bios that were examined could offer different levels of interactivity or social disclosure over time as journalists use the medium more. It is possible the data will evolve over time as journalists get more comfortable using the platform, so the results should be understood within the context of when they were coded.

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